



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,213	02/28/2006	Robert Montague Ellard	186617/US/DJB/VEJ	1378
32940 7590 08/16/2007 DORSEY & WHITNEY LLP 555 CALIFORNIA STREET, SUITE 1000 SUITE 1000 SAN FRANCISCO, CA 94104			EXAMINER LIU, HARRY K	
			ART UNIT 3662	PAPER NUMBER
			MAIL DATE 08/16/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/534,213	<b>Applicant(s)</b> ELLARD, ROBERT MONTAGUE	
	<b>Examiner</b> Harry Liu	<b>Art Unit</b> 3662	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 May 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☒ Claim(s) 13-16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/9/2006, 10/11/2005</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

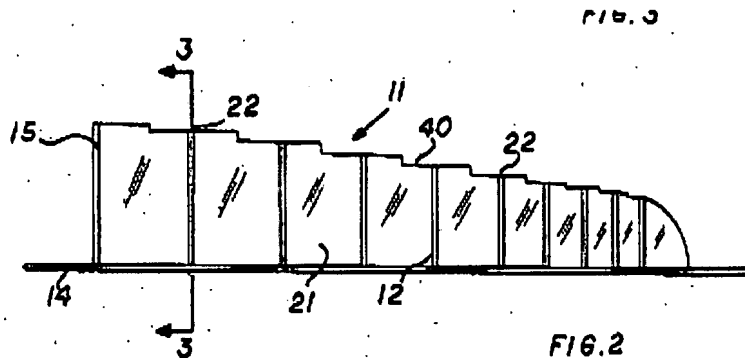
***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peng (4656482) in view of Pulford (6243037).

Regarding claim 1, Peng discloses an antenna array with active monopole elements (article 12 in FIG. 2 below) for transmitting signal in respective frequency range (column 3, lines 49-58), the relative spacing and heights of successive elements along the array having logarithmic relationship (log-periodic) (Abstract, column 1, lines 33-47). Peng discloses impedance matching circuit (column 3, lines 49-66) but fails to disclose switching active element by grounding the element or use it for a surface radar system. However, Pulford teaches use of in line antenna as surface wave radar (column 2, lines 18-35), plus it is a known technique to switch off an electronic device by grounding it. It would have been obvious to ground the remaining active elements in order to transmit only the frequency wanted and use it as surface radar.



Regarding claim 2, Peng discloses the switch means sequentially selects one of elements (active region shifts)(column 1, lines 48-67).

Regarding claim 3, Peng as modified by Pulford is surface wave radar that transmits different frequencies by activating each individual element for detecting objects on the surface of ocean. It would have been obvious to operate the antenna in a continuous and repeated way in order to scan through all frequencies in the range and monitoring objects all the time.

Regarding claim 4, Peng as modified by Pulford does not specifically disclose passive elements at respective ends of linear array. However, receiving diversity is a popular technique in communication by using spaced apart antenna for receiving. It would have been obvious to make the both ends elements passive (receive only) in order to get receiving diversity.

Regarding claim 5, Peng disclose the height and spacing of each element have logarithmic relationship (column 1, lines 27-39).

Regarding claim 8, Peng discloses the impedance matching for each antenna element (column 3, lines 49-66 and FIG. 4).

Regarding claim 9, Peng discloses the impedance matching for each antenna element (column 3, lines 49-66 and FIG. 4). Parallel-connected inductor and capacitor are famous as resonant matching circuit. It would have been obvious to connect this LC circuit between transmission line and ground in order to do impedance matching.

Regarding claim 10, Peng discloses the impedance matching for each antenna element (column 3, lines 49-66 and FIG. 4). Transmission line inductor is a known technique in matching the impedance of the transmission line. Theoretically, a transmission line is an inductor itself. It would have been obvious to add an inductor at the transmission line to match impedance.

3. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peng (4656482) in view of Pulford (6243037), as applied to claim 1, and further in view of Deasy (5521607).

Regarding claims 11-12, Peng as modified by Pulford does not teach the frequency operating range in the order of 1MHz. However, Deasy teaches use of operating frequency range of 2 to 30 MHz as military HF band (column 3, lines 49-64). It would have been obvious to further modify Peng by using 1MHz frequency range for military application.

4. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peng (4656482) in view of Pulford (6243037), as applied to claim 1, and further in view of De Champlain (2004/0130488).

Regarding claim 6, Peng as modified by Pulford discloses a linear transmit antenna with several active antenna elements but fails to disclose each active element

Art Unit: 3662

includes a grounded radial wire counterpoise. However, De Champlain teaches a radial grounding for each active antenna element for select switching. It would have been obvious to further modify Peng with De Champlain by incorporating grounding radial for each active antenna element in order to work normally and independently while switching.

Regarding claim 7, Peng as modified by Pulford discloses ground radial wire but fails to specifically disclose semicircular region towards the high frequency end of the antenna. However, it is known that surface wave application is typically arranging linear array antenna facing ocean with lower frequency farther from coastline. It would have been obvious to furthermore modify Peng to a linear array face coastline and using semicircular ground radial wires since the radiation is only 180 degrees.

#### ***Allowable Subject Matter***

5. Claims 13-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

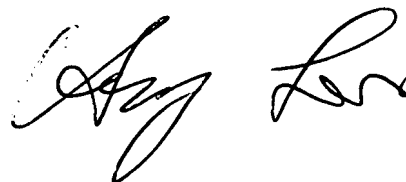
The following is a statement of reasons for the indication of allowable subject matter: passive elements at respective ends of linear array; active element radial wire counterpoise forms a semicircular region oriented towards the high frequency end of the antenna and the specific antenna frequency range, height and spacing are not taught nor obvious over the prior art.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry Liu whose telephone number is 571-270-1338. The examiner can normally be reached on Monday -Thursday and every other Friday..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-270-2338.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Harry Liu  
Examiner  
Art Unit 3662  
August 14, 2007



THOMAS H. TARCZA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3600